

CLAIMS

1. An air conditioner having in a refrigeration cycle a fixed displacement-type first compression mechanism and a variable displacement-type second compression mechanism independent from each other, and having second compression mechanism displacement control means for controlling a displacement of said second compression mechanism, compression mechanism operation switching control means for switching to an operation by both said compression mechanisms or an operation by any one compression mechanism, an evaporator for refrigerant for cooling air for air conditioning, a condenser for refrigerant, a blower for sending air to said evaporator, evaporator temperature detection means for detecting a temperature of said evaporator or a temperature of air at an exit of said evaporator, and evaporator target temperature calculation means for calculating a target temperature of said evaporator temperature or said evaporator exit air temperature, wherein said evaporator target temperature calculation means has first compression mechanism evaporator target temperature calculation means for calculating a target temperature for said first compression mechanism and second compression mechanism evaporator target temperature calculation means for calculating a target temperature for said second compression mechanism, and when said refrigeration cycle is being operated by both compression mechanisms of said first compression mechanism and said second compression mechanism, a displacement of said second compression mechanism is controlled by said second compression mechanism displacement control means by referring to an evaporator temperature or an evaporator exit air temperature detected by said evaporator temperature detection means and a second compression mechanism evaporator target temperature calculated by said second compression mechanism evaporator target temperature calculation means.

2. The air conditioner according to claim 1, wherein, when said refrigeration cycle is being operated by both compression mechanisms of said first compression mechanism and said

second compression mechanism, a first compression mechanism evaporator target temperature calculated by said first compression mechanism evaporator target temperature calculation means is controlled at a temperature lower than a first compression mechanism evaporator target temperature at the time of a sole operation of said first compression mechanism, and/or, at a temperature lower than a second compression mechanism evaporator target temperature calculated by said second compression mechanism evaporator target temperature calculation means.

3. The air conditioner according to claim 1, wherein, when the displacement of said second compression mechanism becomes minimum, or when said second compression mechanism is stopped, said evaporator target temperature is used as a target value at the time of a sole operation of said first compression mechanism.

4. The air conditioner according to claim 1, wherein, when said refrigeration cycle is being operated by both compression mechanisms of said first compression mechanism and said second compression mechanism and when the displacement of said second compression mechanism becomes a predetermined value A or less, the displacement of said second compression mechanism is controlled minimum, or said second compression mechanism is stopped.

5. The air conditioner according to claim 1, wherein, when said refrigeration cycle is being operated by both compression mechanisms of said first compression mechanism and said second compression mechanism, said second compression mechanism evaporator target temperature calculated by said second compression mechanism evaporator target temperature calculation means is controlled at a first compression mechanism evaporator target temperature calculated by said first compression mechanism evaporator target temperature

calculation means or more, and when said evaporator temperature or said evaporator exit air temperature detected by said evaporator temperature detection means becomes lower than a predetermined value B, immediately the displacement of said second compression mechanism is controlled minimum, or said second compression mechanism is stopped.

6. The air conditioner according to claim 1, wherein said second compression mechanism comprises a variable displacement compression mechanism controlled by a displacement control signal, or a variable displacement compression mechanism controlled by control of rotational speed.